

WO 03/103773

PCT/CA03/00796

-23-

**What is claimed is:**

**1. A transmitter apparatus comprising:**

5                   a microphone operable to produce electrical signals  
representing acoustic utterances;

10                   a transmitter circuit in communication with said microphone and  
operable to transmit electromagnetic radiation representing said  
acoustic utterances for reception by a receiver;

15                   a housing having first and second opposite end portions and a  
retention portion between said first and second opposite end  
portions, said retention portion being operable to cooperate with  
a receptacle on a breathing apparatus to facilitate installation  
and removal of said transmitter apparatus on said breathing  
apparatus

20                   2. The transmitter apparatus of claim 1 wherein said retention portion is  
operable to frictionally engage with said receptacle on said breathing  
apparatus.

25                   3. The transmitter apparatus of claim 1 further comprising a compensator  
for compensating for distortions made to said acoustic utterances.

4. The transmitter apparatus of claim 3 wherein said compensator filters  
said acoustic utterances made by a wearer.

30                   5. The transmitter apparatus of claim 3 wherein said compensator  
comprises a compensator circuit for electrically compensating for said  
distortions.

WO 03/103773

PCT/CA03/00796

-24-

6. The apparatus of claim 1 wherein said microphone is on one of said first and second opposite end portions of said housing.
- 5 7. The apparatus of claim 1 further comprising power terminals for cooperating with a power source to permit said power source to provide energy for powering said transmitter apparatus.
- 10 8. The apparatus of claim 7 wherein said power terminals are inside said housing.
- 15 9. The apparatus of claim 7 further comprising a charging port for receiving energy supplied externally to said housing and for providing said energy to said power terminals.
- 20 10. The apparatus of claim 9 wherein said charging port comprises a charging socket on an end of said housing, opposite said end on which said microphone is located.
- 25 11. The apparatus of claim 1 wherein said retention portion is curved.
12. The apparatus of claim 1 wherein said retention portion is concave.
13. The apparatus of claim 1 wherein said retention portion has a leading edge and a trailing edge, said leading edge being thicker than said trailing edge.
- 30 14. The apparatus of claim 1 wherein said retention portion has a wedge-shaped cross section.
15. The apparatus of claim 1 wherein said housing is modular.

WO 03/103773

PCT/CA03/00796

-25-

16. The apparatus of claim 1, further comprising a breathing apparatus having a receptacle for receiving and holding said housing therein.
- 5 17. A system comprising the apparatus of claim 1 and further comprising a receiver operable to be supported by a wearer of the breathing apparatus and operable to audibly broadcast a reproduction of said acoustic utterances in response to receipt of said electromagnetic radiation at said receiver.
- 10 18. The system of claim 17 wherein said receiver is operable to produce signals representing said acoustic utterances in response to said electromagnetic radiation and wherein said system further comprises a repeater operable to re-transmit said signals to a remote receiver.
- 15 19. A transmitter apparatus comprising:
- means for producing electrical signals representing acoustic utterances;
- 20 means, in communication with said means for producing, for transmitting electromagnetic radiation representing said acoustic utterances for reception by a receiver;
- 25 means for housing said means for producing and said means for transmitting; and
- 30 means for retaining said means for housing in a receptacle on a breathing apparatus to facilitate installation of said transmitter apparatus into said breathing apparatus and to facilitate removal of the transmitter apparatus from said breathing apparatus.

WO 03/103773

PCT/CA03/00796

-26-

**20.** A method of facilitating communications for a wearer of a breathing apparatus, the method comprising:

5                   transmitting from a transmitter on the breathing apparatus electromagnetic radiation representing acoustic utterances made by the wearer of the breathing apparatus for reception by a receiver supported by the wearer; and

10                   audibly broadcasting a reproduction of said acoustic utterances in response to receipt of said electromagnetic radiation at said receiver.

15                   **21.** The method of claim 20 wherein transmitting comprises transmitting from said transmitter mounted on said breathing apparatus.

**22.** The method of claim 20 wherein transmitting comprises transmitting from a removable transmitter mounted in said breathing apparatus.

20                   **23.** The method of claim 20 further comprising producing signals in response to said electromagnetic radiation and transmitting said signals to a repeater for re-transmission to a remote receiver.

25                   **24.** The method of claim 20 further comprising producing electrical signals in response to said electromagnetic radiation, said electrical signals representing said acoustic utterances, and filtering said signals to correct for distortions.

30                   **25.** An apparatus for facilitating communications for a wearer of a breathing apparatus, the apparatus comprising:

WO 03/103773

PCT/CA03/00796

-27-

means on the breathing apparatus for transmitting electromagnetic radiation representing acoustic utterances made by the wearer of the breathing apparatus for reception by a receiver supported by the wearer; and

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means for audibly broadcasting a reproduction of said acoustic utterances in response to receipt of said electromagnetic radiation at said receiver.

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26. A method of facilitating communications between wearers of a breathing apparatus and a listener within a range of at least one of the wearers of the breathing apparatus, the method comprising:

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transmitting from a transmitter on the breathing apparatus electromagnetic radiation representing acoustic utterances made by at least one wearer of a breathing apparatus, for reception by a plurality of receivers supported by respective wearers within a range; and

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audibly broadcasting a reproduction of said acoustic utterances in response to receipt of said electromagnetic radiation at at least one of said receivers.

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27. A system facilitating communications between wearers of a breathing apparatus and a listener within a range of at least one of the wearers of the breathing apparatus, the system comprising:

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means for transmitting from a transmitter on the breathing apparatus electromagnetic radiation representing acoustic utterances made by at least one of the wearers of the breathing

WO 03/103773

PCT/CA03/00796

-28-

apparatus, for reception by a plurality of receivers supported by respective wearers within the range; and

5 means for audibly broadcasting a reproduction of said acoustic utterances in response to receipt of said electromagnetic radiation at at least one of said receivers.

28. A system facilitating communications between wearers of a breathing apparatus and a listener within a range of at least one of the wearers of  
10 the breathing apparatus, the system comprising:

a plurality of transmitters held in respective receptacles in respective breathing apparatuses for transmitting electromagnetic radiation representing acoustic utterances  
15 made by at least one of the wearers;

a plurality of receivers supported by respective wearers, for receiving said electromagnetic radiation representing said acoustic utterances from at least one of said transmitters; and  
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a plurality of speakers supported by said respective wearers, said speakers being controlled by respective said receivers to audibly broadcast a reproduction of said acoustic utterances represented by said electromagnetic radiation transmitted by at  
25 least one of said transmitters.

29. A method of communicating the occurrence of an event indicated by a pre-defined audio signal, the method comprising:

30 detecting a first pre-defined audio signal; and

WO 03/103773

PCT/CA03/00796

-29-

transmitting a pre-defined radio frequency signal in response to detection of said first pre-defined audio signal.

- 5           **30.**   The method of claim **29** further comprising wearing a detector capable of detecting said first pre-defined audio signal and wearing a transmitter capable of transmitting said pre-defined radio frequency signal.
- 10           **31.**   The method of claim **29** wherein transmitting comprises transmitting a message indicative of the occurrence of said event.
- 32.**   The method of claim **29** wherein transmitting comprises transmitting a homing signal.
- 15           **33.**   The method of claim **31** further comprising transmitting a homing signal.
- 34.**   The method of claim **29** further comprising detecting said event and producing said first pre-defined audio signal in response to detection of said event.
- 20           **35.**   The method of claim **34** further comprising wearing a detector operable to detect said event.
- 36.**   The method of claim **29** further comprising producing a second pre-defined audio signal in response to receiving said first pre-defined radio frequency signal.
- 25           **37.**   The method of claim **36** wherein producing said second pre-defined audio signal comprises producing a synthesized voice message.
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WO 03/103773

PCT/CA03/00796

-30-

38. An apparatus for communicating the occurrence of an event indicated by a pre-defined audio signal, the apparatus comprising:

means for detecting a first pre-defined audio signal; and

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means for transmitting a pre-defined radio frequency signal in response to detection of said first pre-defined audio signal.

39. The apparatus of claim 38 further comprising means to facilitate wearing said means for detecting said first pre-defined audio signal and said means for transmitting.

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40. The apparatus of claim 38 wherein said means for transmitting is operable to transmit a message indicative of said event.

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41. The apparatus of claim 38 wherein said means for transmitting is operable to transmit a homing signal.

42. The apparatus of claim 40 wherein said means for transmitting is operable to transmit a homing signal.

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43. A system comprising the apparatus of claim 38 and further comprising means for detecting said event and means for producing said first pre-defined audio signal in response to detection of said event.

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44. The system of claim 43 further comprising means to facilitate wearing of said means for detecting said event.

45. A system comprising the apparatus of claim 38 and further comprising means for producing a second pre-defined audio signal in response to receiving said first pre-defined radio frequency signal.

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WO 03/103773

PCT/CA03/00796

-31-

- 5
46. The system of claim 45 wherein said means for producing said second pre-defined audio signal comprises means for producing a synthesized voice message.
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47. An apparatus for communicating the occurrence of an event indicated by a pre-defined audio signal, the apparatus comprising:
- a detector operable to detect a first pre-defined audio signal;
- and
- a transmitter operable to transmit a pre-defined radio frequency signal in response to detection of said first pre-defined audio signal.
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48. The apparatus of claim 47 further comprising a strap connected to said detector and said transmitter to facilitate wearing said detector and said transmitter on a person.
- 20
49. The apparatus of claim 47 wherein said transmitter is operable to transmit a message indicative of said event.
- 25
50. The apparatus of claim 47 wherein said transmitter is operable to transmit a homing signal.
51. The apparatus of claim 49 wherein said transmitter is operable to transmit a homing signal.
- 30
52. A system comprising the apparatus of claim 47 and further comprising an event detector and an audio signal generator in communication with

WO 03/103773

PCT/CA03/00796

-32-

said event detector for generating said first pre-defined audio signal in response to detection of said event.

5           **53.**   The system of claim **52** further comprising a strap connected to said event detector and said audio signal generator to facilitate wearing said event detector and said audio signal generator on a person.

10           **54.**   A system comprising the apparatus of claim **47** and further comprising a second audio signal generator for generating a second audio signal in response to receipt of said first pre-defined radio signal.

15           **55.**   The system of claim **54** wherein said second audio signal generator comprises a voice synthesizer for producing a voice synthesized message.

**56.**   A method of facilitating communications for a wearer of a mask, the method comprising:

20                     receiving a removable transmitter apparatus in a receptacle in the mask, to permit said transmitter apparatus to receive utterances made by the wearer of the mask and to transmit electromagnetic radiation representing said utterances for reception by a receiver; and

25                     frictionally engaging said removable transmitter apparatus in said receptacle to hold said removable transmitter apparatus therein.

WO 03/103773

PCT/CA03/00796

-33-

57. The method of claim 56 wherein receiving said transmitter apparatus comprises receiving said transmitter apparatus in said receptacle on a user-facing side of said mask.
- 5 58. The method of claim 56 wherein receiving comprises receiving said transmitter apparatus between a breathing valve and a chin seal defining said receptacle in said mask.
- 10 59. The method of claim 58 wherein receiving further comprises receiving a portion of said chin seal between opposite end portions of said transmitter apparatus.
- 15 60. The method of claim 59 wherein receiving further comprises receiving a portion of said chin seal in a concave portion of said transmitter apparatus.
- 20 61. The method of claim 59 wherein receiving further comprises receiving a portion of said chin seal adjacent a curved portion of said transmitter.